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Evaluation of the Prevalence of Generalized Anxiety Disorder and Its Association with Worry in Students of Zanjan University of Medical Sciences

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Abstract

Background and Objective: Generalized anxiety disorder (GAD) is one of the most prevalent psychiatric disorder, characterized by excessive worry and anxiety about different daily events and activities. The disorder causes severe problems in the academic and career performance of individuals. However, students are more prone to the damages of the disorder due to environmental and educational pressure. Therefore, this study aimed to evaluate the prevalence of GAD and its association with worry in students of Zanjan University of Medical Sciences, Zanjan, Iran.

Materials and Methods: This cross-sectional research was performed on 350 students (66.2% female) in the academic year of 2018-2019, selected by the availability sampling method. Data were collected using the Penn State Worry Questionnaire (PSWQ) and Generalized Anxiety Disorder 7-item scale (GAD-7) to determine the level of worry and prevalence of GAD in the participants. Data analysis was performed in SPSS version 25 using Chi-square, Mann-Whitney U, and Kruskal-Wallis tests.

Results: In this study, 20.6% of the participants met the criteria for GAD diagnosis. Also, the GAD prevalence was higher in female students, compared to the male participants. However, this difference was not statistically significant ($P>0.05$). Furthermore, there was a significant difference between the participants with GAD and healthy students regarding the worry score ($P<0.05$).

Conclusion: According to the results of the study, a considerable number of students of Zanjan University of Medical Sciences suffered from GAD, which might have affected their academic performance. It is essential to conduct more comprehensive studies in this area and to provide psychological interventions aimed to reduce the GAD damages in students.

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Introduction

Generalized anxiety disorder (GAD) is characterized by persistent anxiety, difficulty concentrating, chronic fatigue, irritability, and muscle tension with decreased quality of life (1). Besides, worry and other GAD symptoms are associated with discomfort and dysfunction, even in individuals with nonclinical levels of the disorder. In the general population, GAD has a lifetime prevalence of 4.3-5.9% (2, 3), and women are found to be twice as likely to be affected by the disorder as men (4). The prevalence of GAD in the general population of Iran is estimated at 7.4% (5). This disorder is as disabling as major depressive disorder and more disabling than alcohol and substance use disorders, nicotine dependence, as well as other anxiety and personality disorders (6). In data from the World Health Organization (WHO), 56.3% of those with GAD experience severe dysfunction and inability (7). As well as, GAD represents an independent risk factor for cardiovascular diseases (8).

In general, anxiety disorders are the most prevalent psychiatric disorder in students, and about 11.9% of students suffer from an anxiety disorder (9). However, GAD with the age of onset at 20 (10) seems to be more prevalent in students, compared to other anxiety disorders. The prevalence of anxiety in students varies between 34.9 to 65% (11), and female medical students experience more anxiety, compared to male students (12, 13). In a study in students of six countries, the lifetime prevalence of GAD was estimated at 18.6%, which was much higher than the level reported for the general population (14).

One of the main causes of students' poor academic performance is worry and anxiety. According to previous studies, anxious people have difficulty concentrating and must spend more time on a task, compared to non-anxious individuals (15). In fact, worry prevents people from focusing all of the attention resources on the task through eliciting unhelpful cognitions (16). Ultimately, poor concentration can lead to impaired performance in a variety of tasks. Worry is defined as the central feature of GAD, and its repetitive nature has a significant effect on people's ability to concentrate. In research on 175 people with GAD,

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difficulty concentrating was reported in about 90% of the participants (17).

Chronic fatigue is another symptom of GAD, as many people with this disorder report a lack of sufficient energy to perform activities during most days of the week or a rapid sense of fatigue. A part of the curriculum of medicine discipline requires medical and paramedical students to pass internship courses in training hospitals, held in different hours of the day. GAD extremely decreases the effective activities of students during the internship and leads to their drowsiness and performance deterioration. Given the important role of this group of students in the provision of healthcare services, it is vital to identify and treat GAD in medical students, which is recognized as the main factor for their performance deterioration, so that human errors would decrease in the field of health (18).

Special life situations of the students (e.g., problems related to education, academic stress, separation from the family, and independence) make them vulnerable to psychiatric disorders, especially GAD. As mentioned before, GAD extremely damages the academic and job performance of students, especially medical and paramedical students, by deteriorating the sources of attention, causing difficulty concentrating, and reducing the energy level. As such, it seems crucial to evaluate the prevalence of GAD in students since it would enable psychological health specialists to implement individual or group preventive or treatment programs for students with GAD, thereby minimizing the costs imposed on the treatment and education system of the country. Despite the mentioned issues, no research has directly assessed the prevalence of GAD in students of Iran. with this background in mind, this study aimed to evaluate the prevalence of GAD in students of Zanjan University of Medical Sciences, Zanjan, Iran in 2018-2019.

Materials and Methods

The present study was approved by the ethics committee of Zanjan University of Medical Sciences with the code of IR.ZUMS.REC.1397.260. Present research was a cross-sectional study. Research was performed on all students of Zanjan University of Medical Sciences (N=3500) in the first semester of the academic year 2018-2019. The sample size was determined using the Cochran's sample size determination formula. Accordingly, a sample size of 347 was estimated, and a total of 350 subjects were selected using the availability sampling method. In the next stage, questionnaires were filled by 350 students in Zanjan University of Medical Sciences.

Notably, the demographic information of the participants related to their age, gender, and level of education was collected by applying a researcher-made questionnaire.

The Penn State Worry Questionnaire (PSWQ) is a 16-item self-report measure used for screening individuals with GAD (19). PSWQ measures severe, excessive, and uncontrollable worry. The items of PSWQ are scored based on a five-point Likert scale from “not at all” (score=1) to “very typical” (score=5). In addition, the questionnaire consists of two factors, namely general worry (11 items) and lack of worry (five items). Internal consistency coefficients in normal and student groups were reported between 0.90 and 0.91 (20, 21), and test-retest coefficients in clinical and student groups were reported to be 0.74 to 0.92 (22, 23). Furthermore, internal consistency and test-retest coefficients (with an interval of one month) of the questionnaire in the Iranian Students' Society were calculated at 0.88 and 0.79, respectively, and had a favorable validity.

Generalized Anxiety Disorder 7-item scale (GAD-7) is a brief scale to identify cases of GAD and measure the severity of clinical symptoms. The questionnaire comprises seven items and has an additional question that measures the degree to which individual, social, family, and job functions are impaired by the disorder. The questionnaire’s items are scored based on a four-point Likert scale from never (score=0) to almost every day (score=3). In the original version, the Cronbach's alpha and the retest coefficients are respectively 0.92 and 0.83 in two weeks. The GAD-7 also has acceptable convergent validity in the original version (24). However, the internal consistency of the questionnaire was reported at α=0.85 in Iranian society. Moreover, GAD-7 had a satisfactory convergent validity in the present study (25). Notably, the cut-off point of the questionnaire to determine the existence or lack of existence of GAD was determined at 10 (24, 25). Data analysis was performed in SPSS version 25 using Chi-square, Mann-Whitney U, and Kruskal Wallis test.

Results

In the end, 330 out of 350 questionnaires were completed (94.3%), and 20 questionnaires (5.7%) were excluded due to repetitive or lack of response. In terms of gender, 68.8% of the subjects were female (N=227), and regarding the level of education, 55.2% of the participants had an undergraduate (N=182), whereas 11.2% and 33.6% of the students had a graduated and Doctor of Medicine, respectively (N=37 and 111, respectively). Furthermore, 72.1% of the subjects were in the age range of 18-22 years (N=238) while 22.7%, 4.8%, and 0.3% of the students were in the age ranges of 22-26, 26-30, and above 30 years, respectively (N=75, 16, and 1, respectively).

Table 1 shows the prevalence of GAD based on the cut-off point of 10 in the GAD-7 scale based on

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gender, level of education, and age groups. According to the table, 20.6% of students obtained a score higher than the cut-off point on the scale. In addition, the results were indicative of a higher prevalence in female students, compared to male students. In this study, Chi-square was applied to compare the difference in stratified variables, the results of which showed no significant difference between healthy students and those with GAD in terms of age, level of education, and gender.

Table 1: Prevalence of generalized anxiety disorder based on the cut-off point of 10 in the GAD-7

		Healthy (%)	Generalized anxiety disorder (%)	p. value
Gender	Male	85 (82.5)	18 (17.5)	0.424
	Female	177 (78.0)	50 (22.0)	
	Total	262 (79.4)	68 (20.6)	
Education	Undergraduate	143 (78.6)	39 (21.4)	0.527
	Graduate	32 (86.5)	5 (13.5)	
	Doctor of Medicine	87 (78.4)	24 (21.6)	
Age	18-22	190 (79.8)	48 (20.2)	0.692
	22-26	57 (76.0)	18 (24.0)	
	26-30	14 (87.5)	2 (12.5)	

Lack of normal distribution of the data (P<0.05) led to the application of the Mann-Whitney U test to compare the mean GAD score in gender groups. According to the results, no significant difference was observed between male and female students regarding the mean GAD score (P<0.05). Table 2 presents the comparison results of mean scores of individuals obtained in the GAD-7 scale and PSWQ based on the level of education and age groups. At this point, we applied the Kruskal-Wallis test considering that the data was distributed abnormally (P<0.05). According to Table 2, no significant difference was observed in scores obtained from the questionnaires at different age and educational level classes (P=0.05).

Table 2: Mean comparison of the GAD-7 and PSWQ scores based on the education and age

			GAD-7		PSWQ	
		Number (%)	M ± SD	p. value	M ± SD	p. value
Education	Undergraduate	182 (55.2)	6.50 ± 4.50	0.846	44.54 ± 9.22	0.432
	Graduate	37 (11.2)	6.13 ± 3.88		43.64 ± 10.84	
	Doctor of Medicine	111 (33.6)	6.50 ± 4.34		43.39 ± 11.21	
Age	18-22	238 (72.1)	6.31 ± 4.40	0.287	43.56 ± 6.69	0.227
	22-26	75 (22.7)	7.17 ± 4.30		46.0 ± 11.55	
	26-30	16 (4.8)	5.43 ± 3.53		43.12 ± 7.95	

Moreover, the Mann-Whitney test was applied to determine whether there was a significant difference in mean worry scores in two groups of healthy students and those with GAD. The mean worry score was reported to be 41.83±8.78 and 52.64±10.30 in the healthy and GAD groups, respectively, showing a significant difference in this regard (P>0.05).

Discussion

The present study aimed to evaluate the prevalence of GAD in students of Zanjan University of Medical Sciences. In general, GAD is a common disorder in students, especially medical students. The disabling nature of the disorder imposes huge costs on the health care system, which makes its prevention and treatment extremely crucial (4, 26, 27). According to the results of the present research, GAD had a prevalence of 20.6% in the population studied, which was several times higher than the level reported in the general population. Some of the causes of this high GAD level in the students, especially those studying in medical fields (e.g., assistants and nurses), included a professional encounter with patients plus the change of sleep and waking hours during work shifts (28). On the other hand, students are prone to psychological disorders, especially anxiety disorders, due to their special situations, including being away from the

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family, entering large and stressful complexes, having economic problems and insufficient income, and dealing with a high volume of courses and intensive competitions (29, 30). In line with previous studies (12-14), the prevalence of GAD was slightly higher in female students, compared to male students. Nonetheless, this difference was statistically insignificant. The possible causes of the difference between male and female students in terms of the prevalence of GAD included the difference in brain structures (31), hormonal differences (32), the role of the menstrual cycle (32-34), and type of coping strategy (e.g., avoidance coping style, that is mainly used by women and is determined by denying or avoiding a stressful situation, is closely related to psychological pathology) (35, 36).

The comparison of the difference in various educational and age groups regarding the number of individuals with GAD showed that the difference between all groups was not statistically significant. In other words, the groups assessed were almost similar in terms of the prevalence of GAD. Consistent with these findings, no significant difference was observed in the total GAD scores of students and their worry in the groups evaluated. Furthermore, the comparison of the worry scores of healthy individuals and those with GAD revealed that a much higher level of worry was experienced by students with GAD, compared to healthy individuals.

The subjects of the present study were solely selected from the students in Zanjan University of Medical Sciences due to their important role in health care provision and the irreversible damages caused by the individual errors of this group of people caused by problems such as psychological disorders. In this regard, the statistics reported for the general population were not valid for the student population and serious measures must be taken in this area. In this respect, our findings are congruent with the results obtained by Khakpour et al. (37), who reported that 17.6% of the students of Zanjan University of Medical Sciences were suspected of having moderate to severe psychiatric disorders. Several studies have reported a psychological disorder prevalence of 17.6-72% for students (38-40). However, studies conducted in this field have yielded contradictory results due to the use of different research tools and methodologies. While numerous studies have been performed on the overall prevalence of psychological disorders in students, none of them has specifically focused on GAD. Therefore, one of the valuable aspects of the current study was especially focusing on GAD and highlighting its importance as a common disorder in students.

According to the results of the present study, there was a considerable GAD prevalence in students of Zanjan University of Medical Sciences and more serious measures must be taken to prevent and treat this disorder. While those with GAD might function similarly to healthy individuals, the cost paid by people with the disorder to achieve this level of performance in terms of energy and time is significantly higher than in healthy people (17). Various studies have shown a positive correlation between psychological inflexibility and stress, worry, GAD, and somatoform (41). Given the significant difference between the GAD and healthy groups in terms of the level of worry, a strategy to improve the condition is reinforcing psychological flexibility in students, which reduces stress and worry. To achieve this goal, students should be taught the psychological flexibility techniques through interventions such as acceptance and commitment therapy, which ultimately contributes to the increase of their ability to deal with psychological distress in everyday life (42). Furthermore, holding educational workshops on anxiety disorders, especially GAD, can heighten the awareness of students and increase their desire to seek psychological treatments.

One of the major limitations of the present study was its small sample size. However, sampling errors can be minimized and the results can be generalized with more confidence by increasing the sample size in prevalence studies. Another limitation of the study was using questionnaires to identify GAD in students instead of psychiatric diagnostic interviews. Moreover, the individual differences, psychological characteristics, and the place of residence of students (in dormitories or other residential places) were not taken into account. Overall, the present study was performed on students and its generalization to other communities should be carried out with caution.

It is suggested that structured interviews be carried out with students in future studies to eliminate the limitations of using questionnaires. It is also recommended that other factors such as a larger sample size, field of study, and a wide range of psychological disorders (e.g., major depressive disorder, obsessive-compulsive disorder, panic disorder) be considered in other studies.

The results of this study are important for Zanjan University of Medical Sciences Counseling Center due to demonstrating the need for psychological and awareness-raising interventions in the field of psychological disorders, especially GAD. Addressing GAD in this center can be an important step toward improving students' psychological health, which is expected to enhance their academic performance significantly.

Conclusion

Despite the limitations, the current research provided primary data on the prevalence of GAD in

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students of the country. According to the results, GAD had a considerable prevalence (20.6%) in students of Zanjan University of Medical Sciences. Given the damages of the disorder to the academic and occupational performance of students, especially those in the medical field, serious measures are required to prevent and control the disorder and minimize its negative impacts. Also, university authorities and student counseling centers should pay special attention to GAD in students since the damages caused by the condition can be significantly controlled by heightening students' awareness of psychological disorders and familiarizing them with treatment processes, recognizing risk and protective factors related to psychological disorders in general and GAD in particular.

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